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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,365	06/22/2001	Stephen DeOrnellas	TEGL-01092US1	8894
23910	7590	02/01/2006	EXAMINER	
FLIESLER MEYER, LLP FOUR EMBARCADERO CENTER SUITE 400 SAN FRANCISCO, CA 94111			ALEJANDRO MULERO, LUZ L	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/888,365

Applicant(s)

DEORNELLAS ET AL.

Examiner

Luz L. Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19 and 67-83 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19 and 67-83 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/18/05 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 19 and 67-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins et al., U.S. Patent 5,556,501 in view of DeOrnellas et al., WO 99/25568.

Collins et al. shows the invention as claimed including a method of operating an etch reactor which comprises a reactor chamber 16B, an upper electrode 17T/17S with power applied thereto from a RF source 40, at least one side electrode 12, a first heater 96 that heats said upper electrode, and a second heater 92 that heats said at least one side electrode (see fig. 1 and col. 7-lines 45-50), and gas inlets and outlets, the method comprising: introducing process gas into said chamber 16B, and heating the upper electrode with said first heater to a temperature such that any material resulting from the reaction deposited on the surface of the upper electrode forms a stable film comprising halogen elements (see fig. 1 and its description), and heating the at least one side electrode with the second heater. For a complete description see fig. 1 and its description and col. 21-line 43 to col. 22-line 43.

Collins et al. is applied as above but fails to expressly disclose a platinum etch method or where oxygen and chlorine are present in the reactor and heating the upper electrode causes deposits of oxygen and chlorine to de-absorb from the upper electrode in order to leave mostly platinum deposited on the surface. However, it should be noted that Collins et al. discloses that the apparatus of fig. 1 can be used to etch a variety of materials including etching metals (see col. 6-line 28). DeOrnellas et al. discloses a similar three electrode configuration as in Collins et al. (see fig. 7) where platinum or other materials are etched in a chlorine gas and oxygen is inherently present in the chamber (see page 8, line 25 to page 9, line 17). In view of this disclosure, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Collins et al. so as to performing the platinum etching process of DeOrnellas et al. because this would be a suitable method, for example, to reduce the platinum deposits that can form on the wafer.

Furthermore, both Collins et al. and DeOrnellas et al. are applied as above but fail to expressly disclose heating the upper electrode or the side electrode to a temperature of about 300 Celsius to about 500 Celsius. However, a prima facie case of obviousness still exists because generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Concerning claims 72-75 and 80-83, note that inherently any gas collected on the upper surface will desorb or boil off from the surface as a result of heating of these surfaces.

Claim 19 and 67-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins et al., U.S. Patent 5,556,501 in view of Keizo, JP 07-130712A.

Collins et al. shows the invention as claimed including a method of operating an etch reactor which comprises a reactor chamber 16B, an upper electrode 17T/17S with power applied thereto from a RF source 40, at least one side electrode 12, a first heater

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96 that heats said upper electrode, and a second heater 92 that heats said at least one side electrode (see fig. 1 and col. 7-lines 45-50), and gas inlets and outlets, the method comprising: introducing process gas into said chamber 16B, and heating the upper electrode with said first heater to a temperature such that any material resulting from the reaction deposited on the surface of the upper electrode forms a stable film comprising halogen elements (see fig. 1 and its description), and heating the at least one side electrode with the second heater. For a complete description see fig. 1 and its description and col. 21-line 43 to col. 22-line 43.

Collins et al. is applied as above but fails to expressly disclose a platinum etch method or where oxygen and chlorine are present in the reactor and heating the upper electrode causes deposits of oxygen and chlorine to de-absorb from the upper electrode in order to leave mostly platinum deposited on the surface. However, it should be noted that Collins et al. discloses that the apparatus of fig. 1 can be used to etch a variety of materials including etching metals (see col. 6-line 28). Keizo discloses performing plasma etching of platinum using a chloride containing gas (see abstract). Furthermore, note that inherently oxygen will be present in the chamber. In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Collins et al. so as to performing the platinum etching process of Keizo et al. because this would be a suitable method, for example, to reduce the platinum deposits that can form on the wafer.

Furthermore, both Collins et al. Keizo are applied as above but fail to expressly disclose heating the upper electrode or the side electrode to a temperature of about 300

Celsius to about 500 Celsius. However, a prima facie case of obviousness still exists because generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Concerning claims 72-75 and 80-83, note that inherently any gas collected on the upper surface will desorb or boil off from the surface as a result of heating of these surfaces.

Claims 19, 67, 69-70, 72-78, and 80-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al., WO 97/27622 in view of DeOrnellas et al., WO 99/25568.

Imai et al. shows the invention substantially as claimed including a method of operating an etch reactor which comprises a reactor chamber 7, an upper electrode 5, a heater 11 that heats said upper electrode, and gas inlets and outlets comprising: introducing process gas into said chamber 7, and heating the upper electrode with said heater 11 to a temperature such that any material resulting from the reaction deposited on the surface of the upper electrode forms a stable film comprising halogen elements (see fig. 1 and abstract).

Imai et al. is applied as above but fails to expressly disclose a platinum or non-volatile etch method where oxygen and chlorine are present in the reactor and heating the upper electrode causes deposits of oxygen and chlorine to de-absorb from the upper electrode in order to leave mostly platinum deposited on the surface. DeOrnellas et al. discloses where platinum or other materials are etched in a chlorine gas and oxygen is inherently present in the chamber (see page 8, line 25 to page 9, line 17). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Imai et al. so as to perform the platinum etching process of DeOrnellas et al. because this would be a suitable method, for example, to reduce the platinum deposits that can form on the wafer.

Furthermore, Imai et al. and DeOrnellas et al. both fail to expressly disclose heating the upper electrode to a temperature of about 300 Celsius to about 500 Celsius. However, a prima facie case of obviousness still exists because generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Concerning claims 72-75 and 80-83, note that inherently any gas collected on the upper surface will desorb or boil off from the surface as a result of heating of these surfaces.

Claims 68, 71, and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al., WO 97/27622 in view of DeOrnellas et al. as applied to claims 19, 67, 69-70, 72-78, and 80-83 above, and further in view of Collins et al., U.S. Patent 5,556,501.

Imai et al. and DeOrnellas et al. are applied as above but fail to expressly disclose providing power to the upper electrode and a three electrode structure with a side electrode which is heated by a second heater. Collins et al. discloses an upper electrode 17S with power applied thereto from a RF source 40 and heated by a first heater 96 and an alternative embodiment in which a three electrode structure has a side electrode formed from the walls, wherein the side electrode is heated by a second heater 92 (see fig. 1 and its description, and col. 21-line 43 to col. 22-line 43). Therefore, in view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Imai et al. modified by DeOrnellas et al. so as to provide power to the upper electrode, use a three electrode structure and heating the side electrode with a second heater, as disclosed by Collins et al. because providing power to the upper electrode allows for the flexibility of both inductive and capacitive coupling during the etching process, the three electrode process allows for additional process control and enhancement and heating the side walls provides controllability of the temperature and of the process (see col. 21-lines 44-46).

Claims 19, 67, 69-70, 72-78, and 80-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al., WO 97/27622 in view of Keizo, JP 07-130712A.

Imai et al. shows the invention substantially as claimed including a method of operating an etch reactor which comprises a reactor chamber 7, an upper electrode 5, a heater 11 that heats said upper electrode, and gas inlets and outlets comprising: introducing process gas into said chamber 7, and heating the upper electrode with said heater 11 to a temperature such that any material resulting from the reaction deposited on the surface of the upper electrode forms a stable film comprising halogen elements (see fig. 1 and abstract).

Imai et al. is applied as above but fails to expressly disclose a platinum etch method or where oxygen and chlorine are present in the reactor and heating the upper electrode causes deposits of oxygen and chlorine to de-absorb from the upper electrode in order to leave mostly platinum deposited on the surface. Keizo discloses performing plasma etching of platinum using a chloride containing gas (see abstract). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Imai et al. so as to perform the platinum etching process of Keizo because this would be a suitable method, for example, to reduce the platinum deposits that can form on the wafer.

Furthermore, Imai et al. and Keizo both fail to expressly disclose heating the upper electrode to a temperature of about 300 Celsius to about 500 Celsius. However, a prima facie case of obviousness still exists because generally, differences in concentration or temperature will not support the patentability of subject matter

encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Concerning claims 72-75 and 80-83, note that inherently any gas collected on the upper surface will desorb or boil off from the surface as a result of heating of these surfaces.

Claims 68, 71, and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al., WO 97/27622 in view of Keizo, JP 07-130712A as applied to claims 19, 67, 69-70, 72-78, and 80-83 above, and further in view of Collins et al., U.S. Patent 5,556,501.

Imai et al. and Keizo are applied as above but fail to expressly disclose providing power to the upper electrode and a three electrode structure with a side electrode which is heated by a second heater. Collins et al. discloses an upper electrode 17S with power applied thereto from a RF source 40 and heated by a first heater 96 and an alternative embodiment in which a three electrode structure has a side electrode formed from the walls, wherein the side electrode is heated by a second heater 92 (see fig. 1 and its description, and col. 21-line 43 to col. 22-line 43). Therefore, in view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Imai et al. modified by Keizo so as to provide power to the upper electrode, use a three electrode structure and heating the

side electrode with a second heater, as disclosed by Collins et al. because providing power to the upper electrode allows for the flexibility of both inductive and capacitive coupling during the etching process, the three electrode process allows for additional process control and enhancement and heating the side walls provides controllability of the temperature and of the process (see col. 21-lines 44-46).

Response to Arguments

Applicant's arguments filed 11/18/05 have been fully considered but they are not persuasive.

Applicant argues that it is not obvious to make the leap from a high performance improvement process with the chamber wall heating of Collins et al. or Imai and wafer heating of DeOrnellas et al. or Keizo to, on the other hand, a high reactor reliability process as disclosed by the present invention. However, it is respectfully believed that the combination of Collins et al. and DeOrnellas et al. is obvious over the present invention as presently claimed. In response to applicant's argument that the reasons for combining Collins et al. and DeOrnellas et al. is different than the present invention, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Concerning the fact that Collins et al. or Imai do not show the optimum temperature for preventing flaking, it is respectfully submitted that at a minimum some

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films will be stable within the claimed range of Collins et al.. Furthermore, with respect to Collins et al. and Imai, generally, differences in temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Luz L. Alejandro
Primary Examiner
Art Unit 1763

January 26, 2006